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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/554,894

08/25/2000

Mats Leijon

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10/31/2003

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EXAMINER

MULLINS, BURTON S

ART UNIT

PAPER NUMBER

2834

DATE MAILED: 10/31/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/554,894

Applicant(s)

LEIJON ET AL.

Examiner

Burton S. Mullins

Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 September 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Pursuant to the Board of Appeal's final decision regarding U.S. Application No. 08/973,019, suspension has been lifted. As set forth in the decision on petition requesting suspension, the instant application was granted a suspension pending the decision on appeal of the '019 application. On November 27, 2002, the Board affirmed the rejection of the '019 application and on August 27, 2003, the Board denied applicant's request for reconsideration, thus terminating prosecution of the '019 application. An action on the merits follows.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted ^{23 August 2002} has been considered by the examiner.

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 1-2 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's prior art and Elton et al. (US 4,853,565). Applicant describes that three phase asynchronous traction motors are the most commonly used (p.2, line 33-p.3, line 11). The details of the windings are not described.

Elton, meanwhile, teaches a high voltage cable (Fig.7) for dynamo-electric machines comprising: a conductor comprising plural strands 102, at least some of which are in electrical

contact with one another; a first semi-conducting layer 104 surrounding the conductor; a solid insulating layer 106 surrounding the first semi-conducting layer; and a second semi-conducting layer 110 surrounding the insulating layer and connected to ground.

It would have been obvious to one having ordinary skill to employ the cable of Elton on the known traction motors since Elton's cable would have been desirable to prevent corona discharge appearing in dynamo-electric machines such as asynchronous, induction motors.

A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

5. Claims 1, 3 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schauder et al. (US 4,814,964) in view of Elton et al. (US 4,853,565). Schauder teaches a three phase synchronous traction motor drive 2 with stator windings 3 and 4 fed by convertors/inverters 5 and 6. The details of the windings are not described.

Elton, meanwhile, teaches a high voltage cable (Fig.7) for dynamo-electric machines comprising: a conductor comprising plural strands 102, at least some of which are in electrical contact with one another; a first semi-conducting layer 104 surrounding the conductor; a solid insulating layer 106 surrounding the first semi-conducting layer; and a second semi-conducting layer 110 surrounding the insulating layer and connected to ground.

It would have been obvious to one having ordinary skill to employ the cable of Elton on the traction motor of Schauder since the cable would have been desirable to prevent corona discharge appearing in dynamo-electric machines such as asynchronous, induction motors.

A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

6. Claims 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kumar et al. (US 5,712,802) in view of Elton et al. (US 4,853,565). Kumar teaches a traction vehicle, e.g. locomotive (Fig.1) including plural motors 24 and regulating devices including semiconductor ac/ac converters (inverters 22) and rectifiers 20 (Fig.2). Kumar does not teach details of the traction motor winding.

Elton, meanwhile, teaches a high voltage cable (Fig.7) for dynamo-electric machines comprising: a conductor comprising plural strands 102, at least some of which are in electrical contact with one another; a first semi-conducting layer 104 surrounding the conductor; a solid insulating layer 106 surrounding the first semi-conducting layer; and a second semi-conducting layer 110 surrounding the insulating layer and connected to ground.

It would have been obvious to one having ordinary skill to employ the cable of Elton on the Kumar's traction motors since Elton's cable would have been desirable to prevent corona discharge appearing in dynamo-electric machines such as traction motors.

7. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wiart (US 4,072,882) in view of Elton et al. (US 4,853,565). Wiart teaches a dc-ac convertor for a three-phase traction motor 14 including transformer 16 and thyristor bridge SB arranged to supply power to the motor (Fig.1). Wiart does not teach details of the transformer winding.

Elton, meanwhile, teaches a high voltage cable (Fig.7) for dynamo-electric machines comprising: a conductor comprising plural strands 102, at least some of which are in electrical contact with one another; a first semi-conducting layer 104 surrounding the conductor; a solid insulating layer 106 surrounding the first semi-conducting layer; and a second semi-conducting layer 110 surrounding the insulating layer and connected to ground. Elton suggests that the cable may also be used on transformers (c.2, lines 16-18).

It would have been obvious to one having ordinary skill to employ the cable of Elton on the Wiart's transformer since Elton's cable would have been desirable to prevent corona discharge appearing in electrical machines such as transformers.

8. Claims 7-8, 10 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Apsitulista (US 3,571,690) in view of Elton et al. Apsitulista teaches a rotary converter for a railway coach including a single machine having both motor and generator operation (c.1, lines 51-65) and a regulator (rectifier 7). Apsitulista does not teach details of the converter cables.

Elton teaches a high voltage cable (Fig.7) for dynamo-electric machines comprising: a conductor comprising plural strands 102, at least some of which are in electrical contact with one another; a first semi-conducting layer 104 surrounding the conductor; a solid insulating layer 106 surrounding the first semi-conducting layer; and a second semi-conducting layer 110 surrounding the insulating layer and connected to ground.

It would have been obvious to one having ordinary skill to employ the cable of Elton on Apsitulista's converter since Elton's cable would have been desirable to prevent corona discharge appearing in electrical machines.

9. Claims 9 and 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Apsitulista and Elton as applied to claims 7 and 8 above, and further in view of Wiart. Apsitulista and Elton do not teach a frequency converter and dc-ac converter, per se.

Wiart teaches a dc-ac frequency converter for a three-phase traction motor 14 including transformer 16 and thyristor bridge SB arranged to supply power to the motor (Fig.1). Wiart's converter enables torque and speed control of the traction motor (c.1, lines 7-13).

It would have been obvious to one having ordinary skill to use the dc-ac frequency converter of Wiart on the traction drive of Apsitulista and Elton since control of torque and speed would have been desirable.

10. Claims 14-17 and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wiart (US 4,072,882) in view of Elton et al. (US 4,853,565) and Hutchinson et al. (US 5,187,428). Wiart teaches a dc-ac convertor for a three-phase traction motor 14 including transformer 16 and thyristor bridge SB arranged to supply power to the motor (Fig.1). Wiart does not teach details of the transformer winding.

Elton teaches a high voltage cable (Fig.7) for dynamo-electric machines comprising: a conductor comprising plural strands 102, at least some of which are in electrical contact with one another; a first semi-conducting layer 104 surrounding the conductor; a solid insulating layer 106 surrounding the first semi-conducting layer; and a second semi-conducting layer 110

surrounding the insulating layer and connected to ground. Elton suggests that the cable may also be used on transformers (c.2, lines 16-18).

Hutchinson teaches transformers made from magnetic lamination stacks 110/112 used to direct magnetic flux, as is conventional (c.3, line 65-10).

It would have been obvious to one having ordinary skill to employ the cable of Elton on the Wiart's transformer since Elton's cable would have been desirable to prevent corona discharge appearing in electrical machines such as transformers. Furthermore, it would have been obvious to use laminations in the transformer per Hutchinson since laminations would have been desirable to direct magnetic flux through the transformer core.

11. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wiart, Elton and Hutchinson as applied to claim 14 above, further in view of Takaoka (US 5,094,703). Wiart, Elton and Hutchinson substantially teach applicant's invention, but do not teach a cable with plural strands of insulated and uninsulated conductors.

Takaoka teaches a stranded large-sized, power transmission cable comprising a combination of uninsulated stranded conductors and insulated conductors (Figs.7-8, 10&11). The combination of insulated and uninsulated conductors reduces the total amount of insulation needed and reduces the coefficient of skin effect (c.2, lines 16-30).

It would have been obvious to modify Wiart, Elton and Hutchinson and provide insulated and uninsulated conductors per Takaoka since it would have reduced the coefficient of skin effect on the cable as well as the total amount of insulation needed for manufacture.

Response to Arguments

12. Applicant's arguments filed 18 September 2002 have been fully considered but they are not persuasive. Applicant's primary argument is that Elton does not teach a cable used in a high voltage machine such as a transformer or rotating electrical machine. The examiner responds that Elton's winding structure in Figs.1-7 is suitable for windings in a dynamoelectric machine (abstract, lines 4-8), since Fig.7 is an alternative embodiment of the winding of Figs.1-6 used in a dynamoelectric machine. See c.8, lines 26-38. Applicant further argues that Elton's cable is stiff and if bent would crack and not be able to withstand high voltage. The examiner responds that Elton at c.8, lines 3-9 notes that the semi-conducting layer can be chopped, mixed with resin and molded, or blown on any complex-shaped substrate, which suggests that the semi-conducting layer can be molded or blown onto a cable without causing cable rigidity. Further, Elton teaches that the insulated electrical windings 50 initially extend axially and then bend circumferentially (c.5, line 67-c.6, line 4; Fig.5). Such a bend requires adequate cable flexibility.

Conclusion

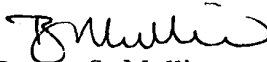
13. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory

period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Burton S. Mullins whose telephone number is 305-7063. The examiner can normally be reached on 9-5. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on 308-1371. The fax phone numbers for the organization where this application or proceeding is assigned are 305-1341 for regular communications and 305-1341 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 308-0956.


Burton S. Mullins
Primary Examiner
Art Unit 2834

bsm
October 29, 2003